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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/832,920	04/12/2001	Takakazu Tanaka	35.G2771	5232

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EXAMINER	
DOTE, JANIS L	
ART UNIT	**PAPER NUMBER**
1756	

DATE MAILED: 04/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/832,920	TANAKA ET AL.	
	Examiner	Art Unit	
	Janis L. Dote	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 February 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *21-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *21-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *12 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The examiner acknowledges the amendments to claims 21, 22, 33, and 34 filed on Feb. 3, 2004 (Amdt020304). Claims 21-34 are pending.

2. The rejections of claims 33 and 34 under 35 U.S.C. 112, second paragraph, set forth in the office action mailed on Nov. 10, 2003 (CTNF111003), paragraph 8, have been withdrawn in response to the amendments to claims 33 and 34 filed in Amdt020304.

The rejection of claims 21-34 under 35 U.S.C. 103(a) over US 5,430,526 (Ohkubo) combined with US 5,723,671 (Goodbrand) and applicants' admission that "it is known that variation of the rest potential is greatly affected by the impurities in the charge transfer material" at page 2, lines 23-25, of the instant specification, set forth in CTNF111003, paragraph 10, has been withdrawn in response to the amendment to claims 21, 22, 33, and 34 filed in Amdt020304, deleting the arylamine compound of formula (CT-5). Neither reference teaches or suggests a photosensitive member comprising a charge transfer material represented by any of formulas (CT-1), (CT-3), or (CT-8), as recited in amended claims 21, 22, 33, and 34 filed in Amdt020304.

The rejection of claims 33 and 34 under 35 U.S.C. 103(a) over Ohkubo combined with US 5,098,809 (Kikuchi), set forth in CTNF111003, paragraph 11, has been withdrawn in response to the amendments to claims 33 and 34, deleting the arylamine compound of formula (CT-6). Neither reference teaches or suggests a photosensitive member comprising a charge transfer material represented by any of formulas (CT-1), (CT-3), or (CT-8), as recited in amended claims 33 and 34 filed in Amdt020304.

3. The examiner notes that the following terms are means-plus-function limitations covered by 35 U.S.C. 112, sixth paragraph: "exposure means," "contact charging means," "developing means," and "transfer means" recited in instant claims 21, 22, 33, and 34. No structure for the terms are recited in the claims. The only definitions for the "exposure means," "developing means," and "transfer means" are provided by instant Fig. 1. The instant specification defines "contact charging means" as a charge roller. See the instant specification at page 19, lines 16-18, and Fig. 1, reference sign **3**, which discloses "a contact charging means using a charge roller."

4. The examiner has interpreted the term $Pd(OAc)_2$, recited in instant claims 33 and 34, as palladium (II) acetate. The

instant specification at page 12, line 9, discloses that the palladium compound can be palladium (II) acetate. The term "Ac" can be used as an abbreviation for acetyl (i.e., CH_3CO-). See Grant & Hackh's Chemical Dictionary, page 4.

Applicants did not controvert the examiner's interpretation of the term $Pd(OAc)_2$ in Amdt020304.

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 21-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,430,526 (Ohkubo) combined with Japanese Patent 11-282180 (JP'180) and applicants' admission that it is known that the variation of the rest potential is greatly affected by the impurities in the charge transfer material at page 2, lines 23-25, of the instant specification. See the Japanese Patent Office (JPO) machine-assisted translation of JP'180 for cites.

Ohkubo discloses an electrophotographic image forming apparatus comprising all the components recited in instant claims 22 and 34, but for the particular photosensitive member. Fig. 1 and col. 2, line 56, to col. 3, line 56. Ohkubo also discloses a process cartridge which comprises all the components

recited in instant claims 21 and 33, but for the particular photosensitive member. Fig. 2 and col. 3, line 65, to col. 4, line 8. Ohkubo discloses that the charging member is a contact charging roller as recited in the instant claims. An oscillating voltage is applied to the charging roller in the form of a DC-biased AC voltage. The peak-to-peak voltage of the oscillating voltage is not less than twice the absolute value of a "charge starting voltage" relative to the photosensitive member. Said oscillating voltage provides uniform charging. Ohkubo discloses that "uneven charging hardly occurs in a regular developer or a reverse development process." Col. 1, lines 36-42, col. 3, line 64, to col. 4, line 5, col. 4, lines 9-17.

Ohkubo does not disclose the use of the photosensitive member recited in the instant claims. However, Ohkubo does not limit the type of photosensitive member used. Col. 4, lines 29-35.

JP'180 discloses a process for making the charge transport triarylamine compound, 4'-methyl-N,N-bis(4-methylphenyl)-4-biphenylamine. Translation, compound 2-8 in Table 9, paragraph 0033, and example 2-14 at paragraphs 0111-0112. The triarylamine has the identical chemical formula as compound CT-3 recited in instant claims 21, 22, 33, and 34. The JP'180

triarylamine compound has a purity of 99.6 % determined by high pressure liquid chromatology (HPLC). Translation, example 2-14, and Table 25 at paragraph 0115, example 2-14. JP'180 teaches that its triarylamine compound may be incorporated in a photosensitive layer comprising a charge generation layer that comprises a charge generating material and a charge transport layer comprising the JP'180 triarylamine compound. Translation, paragraphs 0125-0129, example 2-24, and Table 27 at paragraph 0131, example 2-24. According to JP'180, the conventional Ullmann condensation provides a resultant charge transport compound that comprises impurities and decomposition products which "have a bad influence on electrophotographic properties generate." Translation, paragraph 0004, lines 1-4. JP'180 discloses that its process of making charge transport molecules suppresses the amount of impurities and decomposition products, and provides charge transport compounds in high yields and with high purity. Translation, paragraphs 0006, 0144, and 0145. JP'180 shows that the charge transport compound 4'-methyl-N,N-bis(4-methylphenyl)-4-biphenylamine is obtained by its method, the charge transport compound has a higher HPLC purity of 99.6% compared to the same compound made by the conventional Ullmann process of 97.5 %. Translation, Table 25, example 2-14 and comparative

example 2-12. JP'180 further shows that when a two-layered photosensitive member comprises the charge transport compound 4'-methyl-N,N-bis(4-methylphenyl)-4-biphenylamine obtained by its method, the member exhibited an initial residual potential of 0 volts; and after 3,000 copies, the variations in light potential and dark potential from the initial potentials were 0 and +5 volts, respectively. When the two-layered photosensitive member comprises the charge transport compound 4'-methyl-N,N-bis(4-methylphenyl)-4-biphenylamine made by the conventional Ullmann process, the member exhibited an initial residual potential of 20 volts; and after 3,000 copies, the variations in light potential and dark potential from the initial potentials were -20 and -25 volts, respectively. Table 27, example 2-24 and comparative example 2-19. As admitted by applicants in the instant specification, "it is known that the variation of the rest potential [of the photosensitive member] is greatly affected by the impurities in the charge transfer material." See the instant specification, page 2, lines 23-25.

Instant claims 21-34 are written in product-by-process format. These claims recite that the charge transfer triphenylamine compound is obtained by reacting an amine compound with an aryl halide in the presence of the base

(claims 23 and 28) and a catalyst comprising a palladium compound and a particular phosphine compound. JP'180 does not make its triarylamine compound by such a method. However, as discussed supra, the JP'180 triarylamine compound has the identical chemical formula as compound CT-3 recited in instant claims 21, 22, 33, and 34. Furthermore, the JP'180 compound is used for the same purpose as compound CT-3, namely to transport charge in an electrophotographic photosensitive member. Accordingly, it appears that the triarylamine compound made by the method disclosed in example 2-14 of JP'180 is the same or substantially the same as the instantly recited triarylamine compound CT-3 made by the method using the particular phosphine compounds recited in the instant claims. The burden is on applicants to prove otherwise. In re Marosi, 218 USPQ 289 (Fed. Cir. 1983); In re Thorpe, 227 USPQ 964 (Fed. Cir. 1985); MPEP 2113.

It would have been obvious for a person having ordinary skill in the art to use the layered photosensitive layer disclosed by JP'180 comprising the triarylamine compound 2-8 taught by JP'180 in example 2-24 of JP'180, as the charge transport material in the charge transport layer, as the photosensitive layer on the conductive support in the apparatus and process cartridge disclosed by Ohkubo, because that person

would have had a reasonable expectation of successfully obtaining an electrophotographic apparatus and process cartridge that have improved stability after many repeated runs.

7. Claims 21-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkubo combined with US 5,495,049 (Nukada).

Ohkubo discloses an electrophotographic image forming apparatus comprising all the components recited in instant claims 22 and 34, but for the particular photosensitive member. Ohkubo also discloses a process cartridge which comprises all the components recited in instant claims 21 and 33, but for the particular photosensitive member. The discussion of Ohkubo in paragraph 6 above is incorporated herein by reference.

Although Ohkubo does not disclose the use of the photosensitive member recited in the instant claims, Ohkubo does not limit the type of photosensitive member used. Col. 4, lines 29-35.

Nukada discloses making the charge transport compound 3,3',4,4',4"-pentamethyltriphenylamine (CT-13). Col. 4, lines 1-12; Table 1, at col. 5, compound CT-13; and example 3 at col. 14. Nukada's compound CT-13 has the identical chemical formula as compound CT-1 recited in instant claims 21, 22, 33, and 34. Nukada further discloses that its charge transport

compound CT-13 may be incorporated in an electrophotographic photosensitive layer comprising a charge generation layer that comprises a charge generation material and a charge transport layer comprising the charge transport triarylamine compound CT-13. Col. 16, lines 39-65, and Table 4, example 17. Nukada discloses that the use of its charge transport compound provides electrophotographic photosensitive members having excellent stability upon repeated use. Col. 2, lines 16-26, and Table 4, example 17.

Instant claims 21-34 are written in product-by-process format. These claims recite that the charge transfer triarylamine compound is obtained by reacting an amine compound with an aryl halide in the presence of a catalyst comprising a particular palladium compound and a particular phosphine compound. Nukada does not disclose that its triarylamine compound CT-13 is obtained by such a method. Nukada, example 3 at col. 14. However, as discussed above, Nukada's triphenylamine compound CT-13 has the identical chemical formula as compound CT-1 recited in the instant claims. Furthermore, Nukada's compound CT-13 is used for the same purpose as compound CT-1, namely to transport charge in an electrophotographic photosensitive member. Moreover, the instant specification discloses that when the charge transfer

triarylamine compound is made by the method recited in the instant claims, the photosensitive member comprising the resulting charge transfer compound exhibits an endurance stability. Instant specification, page 5, lines 14-16; page 5, line 23, to page 6, line 9, and Table 4, examples 1-10. As discussed above, Nukada also discloses that an electrophotographic photosensitive member comprising its charge transport triarylamine compound CT-13 has excellent stability upon repeated use. Col. 16, lines 39-65, and Table 4, example 17. Nukada's table 4 reports that after 1,000 successive image formation cycles, the variation in the surface potential and residual potential in example 17 were 19 V and 22 V, respectively. (From the results reported in Tables 4 and 5 in Nukada, it appears that the choice of charge generating material results in the variation in surface potential. For example, the photosensitive members in example 17 in Table 4 and example 36 in Table 5 have the same composition, but for the charge generation layer. The charge generation layer in example 17 comprises X-type metal free phthalocyanine pigment, while the layer in example 36 comprises a particular dichlorotin phthalocyanine. After 1,000 successive image formation cycles, the variation in the surface potential and residual potential for the photosensitive member in example 17 were 19 V and 22 V,

respectively, while the variations in potentials for the photosensitive member in example 36 were 12 V and 9 V, respectively.) Accordingly, it appears that Nukada's triarylamine compound CT-13 is the same or substantially the same as the instantly recited triarylamine compound made by the method recited in instant claims 21-34. The burden is on applicants to prove otherwise. Marosi, supra; Thorpe, supra; MPEP 2113.

It would have been obvious for a person having ordinary skill in the art to use the layered photosensitive layer disclosed by Nukada comprising the triarylamine compound CT-13 taught by Nukada in example 17 of JP'180, as the charge transport material in the charge transport layer, as the photosensitive layer on the conductive support in the apparatus and process cartridge disclosed by Ohkubo, because that person would have had a reasonable expectation of successfully obtaining an electrophotographic apparatus and process cartridge member that have excellent stability upon repeated use.

8. Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicants are

reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janis L. Dote whose telephone number is (571) 272-1382. The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Mark Huff, can be reached on (571) 272-1385. The central fax phone number is (703) 872-9306.

Any inquiry of papers not received regarding this communication or earlier communications should be directed to Supervisory Application Examiner Ms. Claudia Sullivan, whose telephone number is (571) 272-1052.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Janis L. Dote
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PRIMARY EXAMINER
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JLD
Mar. 29, 2004